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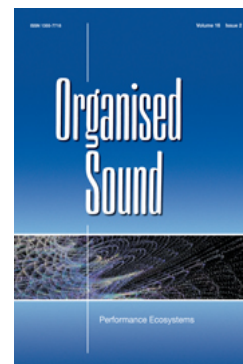
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Cohabiting in Time: Towards an ecology of rhythm

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Most accounts of rhythm focus on notions of duration, pulse and metre, to explore the practices and constructs by which those involved in music performances co-ordinate their involvement. Yet there is a significant body of musical practice where sounds *co-habit* in time, without the same sorts of constraints found in metric co-ordination: from the gentle singing of Joseph Beuys during his Action Piece *I Like America and America Likes Me*, to Paul McCartney's song 'Blackbird'. This is similar, say, to the improvisation practice of composer and trombonist George Lewis in his work with the computer programme *Voyager*. Starting from some ideas laid out by Gaston Bachelard and Gregory Bateson, and recent writings on critical post-humanism, this paper explores ways of considering ecologies of sounds in time, and their consequences for human musical experience.

The first musical act is listening. Pierre Schaeffer, among others, implies as much when he asserts

I think that man had to cry out, that man had to sing ... but that man, probably, did not perceive music until it had passed onto an *instrument*, even if that was a stone, or a skin stretched on a gourd. Probably man needed to go outside of himself, to have another object: an instrument, a machine. (Schaeffer 1971: 56–7)¹

Sounds can be made in many different ways, but they need to be *perceived* as music, if they are to be music. What does it mean to hear sounds as music? It seems to me that any answer to this question must depend on having some notion of what music is for, and I am going to start with the assumption that one of the things music is for is to bind us into time. Thus one of the first things to consider about music is rhythm.

Acoustic ecology starts from an awareness that *music* sounds are only a part of a larger soundscape, involving sounds that emerge through many different agencies and under many different categories. As Schaeffer presents his human narrative, telling of the consequence of a move from unconscious sound-making to conscious sound-making, he unleashes music as a changed perception of sound in general; an awareness that, as instrumental sound emanates through human agency, other sounds may have their

own motivating forces and may equally be perceived as music. This is already clear in many mythological stories, where naturally occurring sounds are embodied in 'instruments' played by gods. In Greek mythology concerning Apollo, for example, the satyr, Marsyas,

stumbled upon the flute, which he had no sooner put to his lips than it played of itself, inspired by the memory of Athene's music. (Graves 1955: 77)

George Lewis gives a more detailed account of this contrast of agencies in the production of sounds:

On one of my first visits with Malachi Favors, the great contrabassist and co-founder of the Art Ensemble of Chicago, I discussed my interest in using computers to play music – somehow. Something I had read about – somewhere. Favors, deploying considerable detail that I am at pains to remember now, launched into an animated recollection of his visit with 'this African brother who had instruments that played themselves'.

In my ignorance of those years, I remember filing this remembrance under the category of 'magic' – though Favors never used that word. In retrospect it seems obvious enough that this taxonomy was evidence of the heavy rational hand of the academy, leaning on my shoulder; indeed, I was fresh out of university. With its privileging of so-called 'logic' and 'facts' over legend and oral narrative, the influence of 'higher learning' made it more difficult for me to see that the nonrational is not the same as the nonimaginable, nor can it be identified with what is nonrealizable. Favors' vivid description of his meeting with this traditional musician, then, was describing a kind of technology, perhaps different from my own. It has become clear that the results, however achieved, essentially parallel the sort of thing I now do with computers. (Lewis 1999: 99)

This contrast of agencies seems like a key point, since rhythm, in one reading anyway, is all about agencies and their interactions.

If we assume that one of the things music is for is to bind us into time, how does this binding work? The notion of rhythm as a binding element arises even in the earliest accounts, as Curt Sachs (1953) points out. Thus Aeschylus has the captive Prometheus, chained to a rock, exclaim 'I am bound here in this rhythm',

¹This author's translation.

echoing a fragment from Archilochos (from two hundred years earlier, around 700 BC), where he strives to 'understand the rhythm that holds mankind in its bonds'.

When Aristoxenos defines rhythm as *taxis chronon*, 'the order of times', we see a logical rule governing the binding. The French psychologist Gaston Bachelard, in his book *The Dialectic of Duration* (1936), provides us with a way of thinking about the nature of this binding. Bachelard was a follower of the great French philosopher Henri Bergson, and *The Dialectic of Duration* attempts to show that the perception of duration, one of Bergson's main themes, is subject to a dialectic or duality. So Bachelard identifies Bergson's philosophy as what he calls 'a philosophy of plenitude' – time and experience for him are full. Bachelard argues for a sort of psychological duel between fullness and emptiness, where the moments of fullness have special meaning for us, and we have to work at them. However, Bachelard is concerned not just with the internals of individual psychology but also with the connections and social implications of communal perception, and moments where we have a communal sense of fullness. The passage I find interesting is as follows:

But the equalisation of timing is already one of the great tasks of relational psychology. When one has effected this synchronisation – that is to say, when one has put precisely together two superpositions of two different psyches – one sees that one has almost all the attributes of physical adhesive bonding. The time of thought marks thought profoundly. Perhaps one is not thinking the same thing, but one thinks something at the same time. What a union! (Bachelard 1936: 121)²

And then, about rhythm itself:

The beat acts as a signal, not as a mere duration. It binds into coincidences, binds rhythms into instants that will stand out. (Bachelard 1936: 140)

This proposes rhythm as a mechanism for binding together agencies at moments of mutual time perception, as they are involved in music production and other communicative experiences. It clearly relates to a remark of Alfred Einstein, where he says, 'all our judgments in which time plays a part are always judgments of *simultaneous events*' (Einstein 1905). Here we see that, in the domain of rhythm, such simultaneous events are enacted and judged *socially*, not in relation to a clock measurement. One could say even that these social judgements are culturally constructed, with a corresponding variety of conception, as Curt Sachs (1953) elucidates in some detail. It is still a question, of course, what the durations *between* these 'instants' could be full of, in terms of actual

experience (for a fuller discussion of this see Nelson 2010).

A social theory of rhythm would probably go on to investigate the actual operation of the 'beat as signal', and the ways in which the timing of those 'simultaneous events', and the durations between them, could carry meaning for people. The reason for talking about rhythm in terms of 'agencies' is the realisation that not all of the 'agents' in rhythm need to be human music participants. As is evident from the brief discussion of acoustic ecology above, there are plenty of other sources of sounds which we judge to be musically potent, and thus implicated in the experience of rhythm.

The clearest account of this approach to the rhythmic fabric of the world comes in the first chapter of Kofi Agawu's book *African Rhythm* (1995), entitled 'Rhythms of Society'. In this chapter, Agawu begins:

In order to construct a 'rhythmic soundscape' for the Northern Ewe area, we need to suppress, or at least underplay, the distinctions between music and non-music ... (1995: 8)

Agawu then goes on to describe a hypothetical day cycle, from dawn to dawn:

4.00 am Dawn is a period of growth and emergence, a time for the rhythms of sleeping and snoring ... As daylight appears, the noises of chickens, goats, sheep and other domestic animals gradually replace the shrill and distinct sounds of night. (1995: 9)

And then later:

9.00 am The day's labours are in full swing everywhere. ... When carpenters nail and drill ... they unfailingly incorporate some sort of pattern into what would otherwise be a series of undifferentiated pulses. That is why practically every Northern Ewe child knows the rhythm transcribed in Example 1.3, a rhythm that carpenters rehearse hundreds of times a day as they hammer nails into wood. (1995: 13)

These descriptions already contain three types of sounds: the unwitting sounds of human bodies, the sounds of animals, both wild and domesticated, and the sounds arising from human work activities. How do these sounds bind their hearers into rhythms, what sorts of binding might there be, and what is the significance of characterising these sound environments as rhythmic?

It is interesting that Bachelard proposes the moment of social cohesion as *thinking* 'something at the same time'. This is not a visual or tactile event. There need be no sound involved to think *one* at the same time as another person. The anthropologist Charles Keil proposes and explains the crucial significance of this situation when he writes 'The power of music is in its participatory discrepancies'

²This author's translation.

(Keil 1987: 275). In other words, in making music it is more interesting *not* to play with exact synchronicity, but in order to do this one must be aware of where in time the synchronicity is. One must be able to *think* something at the same time, in order to act at a time of one's choosing. This is the double nature of rhythm, allowing both pulse and style. As Keil asserts, provocatively: 'Music, to be personally involving and socially valuable, must be "out of time" and "out of tune"' (1987: 275). Of course this remark presupposes a culturally acquired knowledge of both timing and tuning which renders such judgements both possible and meaningful.

Keil bases his observations on the jazz canon, which clearly involves human participants in acts of communal music-making. This is a close rhythmic binding, where the 'out of time' intervals are very small indeed, and there is strong social cohesion of a particular substance. But there are other sorts of rhythmic binding. To hear and respond to the sounds of a non-human agency as *music* requires a different order of 'participatory discrepancy', none the less powerful. For the purposes of this paper I have characterised this as *cohabiting in time*, but I think there is a real rhythmic binding in the ways just discussed, albeit with a different set of thresholds and qualities. The key to this discussion is what it means to participate. Keil takes a strong view of the notion of *participation*:

I am using the concept of 'participation' as defined by Levy-Bruhl and refined by Owen Barfield. ... All humans were participants once upon a time but I believe we still experience much music, and perhaps other portions of reality in this way. I also believe we need more of this participatory consciousness if we are to get back into ecological synchrony with ourselves and with the natural world. ... Participation is the opposite of alienation from nature, from society, from the body, from labour ... (Keil 1987: 275–6)

This strong identification with the other agent(s), really with what Bachelard describes as 'all the attributes of physical adhesive bonding', is the sense of shared temporality, caring and respect which a sense of rhythm invokes. The participatory discrepancies assert one's own agency in action, as the ability to bind to the common sense of pulse asserts one's social cohesion. As Keil says, this sense of identification can bond us to the natural world as well as to other human participants. The notion of co-habiting arises from a more post-humanist view of what identification might mean, but none the less proposes a rhythmic binding between human and non-human agencies. In this reading, humans have no natural priority, and may develop as yet unclear methods of alterity allowing identification and communication outside the norms of inter-human relationships. These could still be rhythmic.

An example of what I mean might be heard in Paul McCartney's song 'Blackbird'.

'Blackbird' appears on the Beatles' 'White Album' of 1968. McCartney sings two verses and two choruses to a simple guitar accompaniment, and a steady pulse which sounds like the click of a record skipping a groove. Already in that beat we have a non-human agency, which pulls us into the world of the turntable and which emphasises the discrepancies in McCartney's moving around of the beat as 'human'. The sound world is highly intimate, juxtaposing a close proximity to the voice and guitar, and the sensation of the background click as 'amplified'. Then a recording of a blackbird appears, and McCartney sings the final verse and chorus in duet with the bird. The sound-world opens out, but the bird partakes of the previous feeling of involvement and intimacy. There is no rhythmic co-ordination in the normal sense; the two participants co-habit the temporal space, yet there is a strong sense of identification between them. The balance in the mix is equal; there is no feeling that the birdsong is background colour, and the tension between the two sets of time events sets up a rhythmic interplay which binds the one into the other in a fashion which most human music-making does not countenance.

That is not to say that human musicians are not susceptible to this sort of rhythmic binding, which Curt Sachs terms 'non-adaption'. Of non-adaption, he says, 'Much as the co-operation of voices and instruments enhances a common rigid rhythm, we have to accept the bewildering fact that the two media often remain independent of one another' (Sachs 1953: 43). The example he gives is from the music of the Chippewa or Ojibwe people of North America, of which he relates:

One of the most unexpected experiences ... is to hear the regular drumbeat of the accompanist follow a tempo entirely different from that of the voice. In one song of the Chippewa, the singer would proceed, say, in quarter notes of M.M. 168, and the drummer, much more slowly, in M.M. 104. Or the other way round, ... (this) testifies to a more or less total independence of the two media and their perception. (Sachs 1953: 43–4)

The crucial point here seems to be separation not just of tempos but of agencies, of voice and drum. The drum is proposed almost as one of those 'instruments that played themselves'. As in the McCartney example, the interesting thing is the mix of agencies, which goes neatly with contemporary notions of critical post-humanism (see Wolfe 2009), where the music we make might go alongside, rather than merely imitate, or dominate the sounds of the animals with whom we share the planet – I'm thinking here also of the gentle singing of Joseph Beuys during his Action Piece *I Like America and America Likes Me*, where he shared his living space for three days with a wild coyote, during which time 'The coyote's behaviour shifted

throughout the three days, becoming cautious, detached, aggressive and sometimes companionable'.³ What do we learn by considering the rhythmic aspects of these sharing environments?

One of the consequences of the revelation of the dual nature of rhythm through the notion of participatory discrepancy is the uncovering of a *mechanism* for style. Keil investigates two stylistic approaches to jazz drumming which he characterises as 'on top' and 'laid back', both in reference to the discrepant timing relationship between the drum tap and the shared, notional pulse. But once there is identification between any two sets of sound events the same stylistic mechanism opens up. Style itself is clearly dependent on specific cultural paradigms, so the meaningfulness of the Chippewa drumming, for example, may be opaque to many. But all of us are able to decode, in our own ways, the dimensions of discrepant timing, and to give a sense of style – and thus meaning – to rhythmic relationships which we feel bound into. The first musical act is listening. This decoding is perhaps the activity that we engage when we identify a sound-world as music, whether as actor or audience participants. Our attention is the conduit of the binding.

Of course the key element in Bachelard's account of rhythmic binding is the unified beat, understood between participants, and there is no such beat present in the McCartney and the Beuys examples, or in Sachs' notion of non-adaptation. But a co-existence or multiplicity of beats is common in music. So in his discussion of African musical culture, Frith, citing the work of the ethnomusicologist John Chernoff, notes that in polyrhythmic music the social participants 'resist the tendency to fuse the parts', or, more precisely: 'The music is perhaps best considered as an arrangement of gaps where one may add a rhythm, rather than as a dense pattern of sound' (Frith 1996: 147).

This is a particular sort of temporal co-habitation where identification with the other is bound not to a coincidence but to a making-way. Bachelard's bonding mechanism is still at work, but multiply, and the timing discrepancies at the heart of style are still apprehensible with respect to the gaps. The micro-timing of when and how these are filled matters as much as the relation of the sounds in any one 'voice' to their intended pulse.

The style apparent in the McCartney song is experienced as a juxtaposition of rhythms with utterly separate intentionalities, and that seems to me to be part of its beauty. The various agreements and discrepancies of timing arise from the co-habiting of human and non-human agencies, and in this example the relationship is clearly skewed in one direction: McCartney can hear the bird, but the bird cannot

hear him. In the Beuys example, this is no longer the case. Here the exchange of sound can be characterised as participation in Keil's strong sense, by all participants, and the range of agencies involved makes an equally strong musical and ecological statement. Life processes and adaptations are evident in both Beuys and the coyote, mediated rhythmically through sounds (and probably, in this instance, through other senses too).

The notion of a performance ecosystem can clearly be seen to implicate rhythm, and what is interesting here is to see how the same sorts of rhythmic concepts are revealing about quite different sorts of performance situations. Although these concepts concern agencies more than habitats, one could argue that mixes of different types of agencies might in themselves constitute sorts of habitats for music. One of the most interesting and revealing of these is the mix of human performer and computer. This situation has already come to light in the discussion of how agencies have been attributed to sounds that arise without human intention, and the composer, trombonist and improviser George Lewis is one of the most interesting investigators of this performance habitat.

In an interview with Brian Lonergan, Lewis gives a nice account of what he feels is involved in the act of music improvisation:

The idea is that improvisation in music, or in any domain, is a matter of exchange – exchange of sound, exchange of personal and cultural narrative, exchange of histories and so on ... Music gets exciting to me when I can empathise with people who are doing it. (Lonergan n.d.)

In the context of the discussion above, one could foresee narratives and histories attaching also to non-human agencies, and Lewis himself goes on to discuss this possibility:

That's why I like improvisation so much, because there's a sense of empathy and you can place yourself inside the other person's consciousness and you can become part of them and try to plumb their motivations. Otherwise it just becomes a lot of cool sounds and that doesn't interest me. And so as a composer and computer-programmer, my job is to create environments where the computer makes mostly decisions that seem plausible and try to reduce the number of bonehead moves that it makes. (Lonergan n.d.)

The important point about Lewis's computer program, *Voyager*, in the context of this discussion, is that the program is an independent producer of sounds and not in any way 'controlled' by a human performer. Lewis's own description of it goes as follows:

Voyager is a non-hierarchical, interactive musical environment that privileges improvisation. In *Voyager*, improvisers engage in dialogue with a computer-driven, interactive 'virtual improvising orchestra'. A computer

³From the Tate Modern website: <http://www.tate.org.uk/modern/exhibitions/beuys/room4.shtml> (accessed 13 November 2010).

program analyses aspects of a human improviser's performance in real time, using that analysis to guide an automatic composition (or, if you will, improvisation) program that generates both complex responses to the musician's playing and independent behaviour that arises from its own internal processes. (Lewis 2000: 33)

It is, in the terms discussed above, in the category of 'instruments that played themselves'. The very idea that the system might, or might not make 'bonehead moves' is an attribution of history and narrative to a non-human agency, necessary for the process of improvisation as Lewis describes it. In a further gloss on the performance situation, he says:

I conceive a performance of *Voyager* as multiple parallel streams of music generation, emanating from both the computers and the humans – a nonhierarchical, improvisational, subject-subject model of discourse, rather than a stimulus/response setup. (Lewis 2000: 34)

What is the rhythmic ecology of this environment?

The important lesson from the discussion of Bachelard's analysis of the notion of the beat is that it proposes one of the essential moments of rhythm as a moment of social integration. And as Simon Frith so clearly shows us, in the two chapters on rhythm in his book *Performing Rights* (1996), social integration is one of the things that rhythm is for. Bachelard simply provides an account of a mechanism which neatly underpins it. Thus a rhythmic account of the nature of a performance of *Voyager* proposes the connection of human and computer agencies as socially integrated participants in time. Lewis himself is quite explicit about the participant nature of the situation:

The incorporation and welcoming of agency, social necessity, personality and difference as aspects of 'sound' distinguish such music from work that 'incorporates' or 'uses' improvisation ... 'Sound' becomes identifiable, not with timbre alone, but with the expression of personality, the assertion of agency, the assumption of responsibility and an encounter with history, memory and identity. (Lewis 2000: 37)

As the discussion above has tried to show, this expression happens, at least in part, through the decoding of temporal relationships under the sign of rhythm, where the rhythmic bindings can be of various sorts. *Voyager* invokes an ecology which Lewis characterises as 'jampack and jelly-tight' (Lewis 2000: 36), not just as some sort of aesthetic choice, but as a characteristic of a particular ethos of social integration, in time.

The inclusion of animal voices in this discussion is intended not just as an illuminating foil for the discussion of agency in the use of technological apparatus in making music, but is more specifically a consequence of a line of thought about art developed by the anthropologist Gregory Bateson. In his essay

'Style, Grace and Information in Primitive Art', Bateson argues that

man is as if displaced sideways and lacks that grace which the animals have ... art is a part of man's quest for grace; sometimes his ecstasy in partial success, sometimes his rage and agony at failure. (Bateson 1967a: 128–9)

In this light, the flute that 'played of itself' and the song of the blackbird are images of grace, and our ability to bind to their rhythms is a sign of our own possible alterity. Bateson's analysis of the matter goes as follows:

I shall argue that the problem of grace is fundamentally a problem of integration and that what is to be integrated is the diverse parts of the mind – especially those multiple levels of which one extreme is called 'consciousness' and the other the 'unconscious'. For the attainment of grace, the reasons of the heart must be integrated with the reasons of the reason. (Bateson 1967a: 129)

From the discussion above, it seems to me that rhythm is one, powerful, way in which integration, whether in a personal, social or ecological sense, can be accomplished, and that the mechanisms of integration are diverse and sophisticated: we are not talking here about a dull shackle of entrainment to a beat. The notion of a potent performance ecosystem would be one in which the possibilities for rhythmic binding and participation are varied and subtle, and involve explicit potential for identifications outside of the narrow confines of human agency and current human modes of communication.

In another essay, 'Form, Substance and Difference', Bateson expands on the particular power of the discrepant relationship between humans and animals:

Blake noted that 'A tear is an intellectual thing', and Pascal asserted that, 'The heart has its reasons of which the reason knows nothing'. We need not be put off by the fact that the reasonings of the heart (or of the hypothalamus) are accompanied by sensations of joy or grief. These computations are concerned with matters which are vital to mammals, namely, matters of relationship, by which I mean love, hate, respect, dependency, spectatorship, performance, dominance, and so on. These are central to the life of any mammal and I see no objection to calling these computations 'thought', though certainly the units of relational computation are different from the units which we use to compute about isolable things. (Bateson 1967b: 470)

In the same way, I would like to say, following Bateson, that we also listen to the rhythmic interplays of music with our sense of mammalian 'social interaction', informed by 'what we are in the process of becoming' through our histories of 'human-technology couplings' (see Roden 2010). In rhythms, we hear these relationships being played out, not symbolically

in Wagnerian leitmotifs but actually: between one player and another, between each player and their instrument, between human sound and animal sound, between human agency and machine agency. What we are present at, and attentive to, during music is an interplay which is now, which is why it is fascinating, rather than a representation of something imaginary. A performance ecosystem is characterised by our strong participation, attention and action in time. The power of music lies in its social and relational dynamics, and these are not abstract strategies but real material.

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